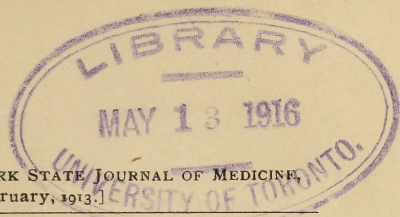


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## PREVENTION OF OCCUPATIONAL DISEASES.\*

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THE problem of the prevention of the occupational diseases may be sub-divided as follows:

1. What the state may do.
2. What physicians may do.
3. What manufacturers may do.
4. What the employee may do.
5. What the public press may do.
6. What the general public may do.
7. What special organizations may do.

1. *What the state may do.*—The work of the state should be (1) educational, through the collection and dissemination of data; and, (2) preventive, through prohibitive and protective legislation.

In this country, the idea of legislative control of occupational diseases has arisen long after that of the safeguarding against occupational accidents. It has arisen in great part from the example of foreign countries, in many of which such legislation has long been in active operation; in part from the increasing desire to promote efficiency in all classes of labor and in part

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from the influence of humanitarian societies or associations and the self-protecting influence of labor organizations. Up to the present time, in the United States, legislation, with only one or two exceptions, has taken the form, as far as occupational diseases are concerned, of attempting to regulate factory ventilation, a problem which is of extreme difficulty owing to the lack of universally accepted standards. About twenty states have vague laws requiring that factories shall be "well ventilated" or "sufficiently ventilated," and ten states specify a minimum cubic air space per occupant. New York State is the only one which provides for systematic analyses of factory air with publication of the results, and Illinois has made good progress in maintaining compulsory standards of air purity. With the exception of these two states, together with New Jersey and Massachusetts, there has been little or no scientific factory inspection in the whole country, designed specifically to control occupational diseases. In the states mentioned, however, some very valuable intensive studies have been made by official inspectors of special industries, notably of the lead, pottery and pearl button industries, as well as those involving the use of mercury and phosphorus.

While we are thus greatly behind such countries as England, Germany, Belgium and France and several other European states in matters of legislation, it is a serious mistake hastily to enact such legislation before sufficient accurate statistics have been obtained. To accomplish this result, a good beginning has been made in eight states which have within the past two years passed laws compelling physicians to report officially a half-dozen of the occupational diseases,



a list which in England has already been extended to 27.

There are, however, a few conditions which constitute such obvious evils that no statistical facts are necessary as a basis for their correction. For example, every one knows the horrible results of working in the match industry where white phosphorus is employed and the recent congressional act taxing this form of the industry out of existence affords the only illustration thus far in this country of preventing a disease by taxation. I see no reason why the use of wood alcohol as a solvent of shellac should not be absolutely prohibited wherever this product is used in confined air, as in the interior of brewers' vats. I see no reason also why laws should not be enacted compelling the placing of warning labels upon containers of hazardous substances, such as kegs of white lead, paint cans, barrels of ferrosilicon, etc., just as poisonous drugs must now be labelled. The caisson disease is another example of a disease readily controlled by legislation.

On the other hand, there are many industries very difficult to thus control which are numerically important, not because they are liable to cause early death, but because they lay the foundations of disease in a very large number of workmen. For example, in the lead industries, it is comparatively easy to control the operation of smelting works, white lead works, etc., but a large majority of all cases of chronic plumbism develop among painters who may not work collectively in factories, but outside and independently. In the histories of over 300 cases of lead poisoning which I have collected in my hospital and dispensary clinics in New York

75 per cent. of the victims were painters. It is in such instances that education may prove more effective than legislation.

The educational function of the state should consist in the collection and publication of records of the occupational diseases, based upon reports of physicians and inspectors in conformity with the universal nomenclature now being devised by the Bureau of the Census in co-operation with the American Medical Association. The publications should comprise not only statistical returns, but concise descriptions of the principal occupational diseases for distribution to physicians, hospitals, and dispensaries and also to factory employees. A booklet containing such description which I formulated, has been issued by the New York State Labor Bureau and constitutes a beginning in this direction. For manufacturers, leaflets should be issued calling attention to the hazards of their special industries, with suggestions as to prevention.

Finally, such travelling exhibits as those prepared by Massachusetts and New York State authorities are of the greatest possible value.

2. *What physicians may do.*—By hearty co-operation with the state authorities in gathering accurate data of the occupational diseases, physicians should furnish the facts upon which future legislation may alone properly be based. They should see to it that the hospital and dispensary clinics which they attend should collect statistics of real value, based upon uniform standards. I have seen a serious case of plumbism in a man who carried lead ingots in a smelting works, yet who was entered upon the hospital records simply as a "laborer." On the other hand, a young man who was entered as an "electrotyper" was



employed merely in tending the outer office of the bookkeeper of the establishment. In my Medical Clinics in Bellevue Hospital and the Cornell University Medical College in New York City, I have supplied special history blanks for the detailed records of the occupational diseases, and also printed leaflets of information which are given to workers in special industries, as that of painters, typesetters, etc.

The most satisfactory aid which physicians can furnish, however, is by undertaking intensive investigations of special industries, and giving the results due publicity in the medical press. Such a research, for example, as that of one of my clinical staff, Dr. Edward L. Keays, comprising the results of personal study of 3,692 examples of caisson disease is worth far more than years of collection of isolated reports made to the state under the physicians' notification act. Much valuable intensive investigation has also been made by physicians and others under authority or direction of the state, like the lead investigations of Dr. Alice Hamilton and Mr. E. E. Pratt, and many interesting studies by Dr. John B. Andrews, Dr. Graham Rogers, not to mention others. But the point is that there are many physicians throughout the country who, by virtue of their official connection with large industrial establishments, are in a position to furnish extremely useful facts, if they could be aroused to do this work. At present, most of this valuable material is, so to speak, going to waste. It might be feasible for the state to furnish these physicians with specially prepared blanks for uniform clinical records and in some instances to furnish official inspectors to co-operate with the physicians. Lay inspectors may properly deal

with conditions of environment such as obvious dust hazards, the presence of toxic fumes, the lack of ventilation, etc., but the extent of injury which such deleterious conditions produce and the often insidious symptoms of chronic poisoning can only properly be estimated by trained physicians. Moreover, before the latter come very many patients with chronic diseases, particularly of the circulation, respiration, and kidneys who have long since abandoned the occupations which produced them, and hence such patients have passed out of any possible industrial control which the state might exercise.

Physicians whose practice includes many cases of occupational disease may do much to aid the cause of prevention by organizing discussions upon such topics in medical societies, and by contributing their experience to the medical press. It is only within a year or two that the Section on Hygiene of the American Medical Association has devoted attention to this important matter, and the joint meeting of that section held this year in co-operation with the American Association for Labor Legislation was most successful and stimulating.

3. *What manufacturers may do.*—From the reported experience of special investigators it appears that many manufacturers are quite ready voluntarily to adopt improved methods when their desirability is pointed out to them. Whether they are disposed to do this from humanitarian or economic considerations need not be discussed at the present time, but it is safe to assert that a majority of them are willing to introduce improved conditions when rightly informed as to their advantages. The simplest way to accomplish this is to demonstrate eco-



conomic efficiency, which in many instances is easy to do. For instance, it has been repeatedly shown that better lighting of certain kinds of factories may increase the output materially. Not only do the employees work more accurately and rapidly, but accidents and incapacities from illness are lessened and the moral tone of the workmen is improved. The same is true in even greater degree of improvements in ventilation, dust removal and everything which tends to promote personal cleanliness. For example, in white lead works in which such facilities for personal cleanliness have been introduced as shower baths, washrooms well supplied with hot water, soap, nail brushes, and towels, clean overalls and separate lunch rooms, lead poisoning soon becomes a rarity and the number of days of illness among the employees may be reduced to a negligible quantity. In one of the plants of the National Lead Company in which a type of foreigners were employed who were peculiarly averse to ablutions, the company found it an economic advantage to add a few cents to the pay roll for each bath that the workmen took. Such a measure could hardly be accomplished by legislation, but the education of the employers as to the nature of the lead hazard and simple means of avoiding it, proved all that was necessary to realize the best results. On the other hand, it is often stated by manufacturers that ignorant or obstinate workmen will not use the hygienic appliances afforded them. An employer in another large white lead factory stated that one of his best foremen he knew was becoming seriously "leaded." He cautioned the man repeatedly to take better care of himself, and finally threatened to discharge him

if he did not obey the hygienic rules of the establishment. The employer further stated that he felt he had done all he could, or all he knew how to do. But he had neglected to allow the workman sufficient time to wash before eating and before going home and neglected to supply periodic inspection by a physician and neglected many other things without which his existing rules were neutralized as to any benefit they might confer. It is in such cases as this that a brief pamphlet of instruction, supplied either by the state or such an educational body as the American Association for Labor Legislation, might prove more effective than compulsory legislation as to the number of nail brushes to be used and similar minute details which are comprised in some of the British factory laws.

I have heard Dr. Alice Hamilton state the interesting observation that in at least one hygienically equipped white lead works in Illinois she found more cases of lead poisoning than in another establishment where the equipment was of the poorest. Doubtless the employers in the first establishment felt that, having furnished proper facilities, their duty ended there and they neglected to exercise either the tact or moral force to see that the workmen availed themselves of them. I know of instances in New York where ventilating suction fans have been installed under the orders of the State Bureau of Factory Inspection, which were only put in operation on days when a visit from the inspector was anticipated. I was lately shown over a paper mill in Massachusetts by the proprietor. In the room where the imported rags were unbaled was a rag shredding machine originally enclosed in a glass-windowed closet. The windows, how-



ever, were broken and the dust and dirt in the surrounding room was inches deep. The fact that one employee had worked continuously in that room for a dozen years was cited with pride but her anemia and chronic bronchitis might have been prevented at the expense of a few panes of glass. The novelty of that suggestion which I made, so startled the proprietor, that I doubt whether he has yet recovered.

Massachusetts has good laws covering such cases of neglect, but legislation which fails to provide for adequate inspection and enforcement may be worse than useless in conferring fancied benefit or security which does not exist.

4. *What the Employee May Do.*—It is notorious that employees, particularly ignorant foreign workmen, who are largely occupied in the grosser forms of labor with crude products in smelting works, pottery works, etc., neglect to use the means provided for their protection. They often will not use respirators or masks because they are uncomfortable, they will not wear gloves to protect their hands from eczema and ulcers and they will eat their lunches on dusty workbenches or sitting on dirty floors and without cleaning their hands, and they will go home unwashed, carrying the poisonous dusts of their trade to be disseminated in their rooms. The admirable system adopted by the National Steel Company for accident prevention might well be applied in many industries to prevent occupational disease. I refer particularly to the system of holding foremen responsible to see that hygienic rules are obeyed by the workmen under them. This is aided by a series of rewards and competition, by tersely worded printed directions and warnings, and by instruction and warning given

at the time of examination of the workmen by inspecting physicians, which latter they are most apt to heed. Often the workman's attitude of neglect arises from misapprehension as to the employer's attitude toward him. He fears to be considered too solicitous about himself, or to be accused of wasting valuable time in means of caring for his health, not realizing how much more time he wastes by attempting to work when in ill health, or by being laid off for invalidism.

5. *What the Public Press May Do.*—Generally speaking, the attitude of the press towards the problems under discussion is improving. Much important information was published in connection with the recent International Hygienic Congress and its admirable exhibition, and the manner in which the campaign against phosphorus poisoning was supported by the press was of great service in suppressing that evil.

One of the most influential of the New York daily papers has begun a collection of printed reports upon occupational diseases to be kept on file for reference when special occupational poisons may demand public attention in its editorial columns, so that correct points of view may be presented.

6. *What the General Public May Do.*—To the public we must look for the financial support which is so much needed for the comprehensive study of the occupational diseases. The endowment of museums of public safety, the establishment of fellowships in medical colleges for the investigation of the pathological problems involved, the equipment of travelling exhibits illustrating occupational hygiene after the manner of the tuberculosis exhibits—these are



some of the ways in which philanthropic laymen may aid the work. In New York City is a Museum of Public Safety, maintained by laymen, which although largely devoted to appliances to prevent industrial accidents, is beginning to exhibit illustrations of occupational disease hazards, and modes of prevention. In Europe there are already fourteen such museums. In my Medical Clinic in the Cornell University Medical College is one fellowship for the study of occupational diseases, and I hope soon to be enabled to offer others, and that the example of the donor will be followed elsewhere.

7. *What Special Organizations May Do.*—The American Association for Labor Legislation since it took up the study of occupational diseases through a special committee, established less than a year ago, has organized a number of important public discussions, issued much useful literature and a comprehensive bibliography of the writings upon the occupational diseases. It has been in cordial co-operation with the State Labor Bureau and the Committee on Occupational Diseases of the New York Academy of Medicine.

This is a brief view merely, of an extremely broad topic in which it has been impossible to do more than outline the scope of activity, and present a few of what I trust may prove practical suggestions in a field which is beginning to be explored in this country with every indication that within the next few years very great advances will be made.

